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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,278	10/10/2001	Craig A. Rosen	PZ010P2	5790

22195 7590 05/24/2006

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EXAMINER	
WOOLWINE, SAMUEL C	

ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,278	ROSEN ET AL.	
	Examiner	Art Unit	
	Samuel Woolwine	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25,28-31 and 34-70* is/are rejected.

7)☒ Claim(s) *26,27,32 and 33* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/29/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This case has been transferred to examiner Samuel Woolwine, whose contact information appears below.

Priority

A review of the prosecution history finds that the only asserted utility that satisfies the requirements of 35 U.S.C. § 101 is the asserted ability of the protein of SEQ ID NO:164 to induce the production of IL-10, a utility that was first asserted in the specification of the instant application with the filing date of 10/10/2001. The utilities asserted in the earlier provisional applications to which the instant application claims priority, in the parent application, now U.S. Patent 6,342,581, and in PCT/US98/13684 do not meet the requirements of 35 U.S.C. § 101 because the fact that the gene encoding the protein of SEQ ID NO:164 is "expressed primarily in macrophage, and to a lesser extent in primary dendritic cells and neutrophils" (page 34, lines 13-14 of the provisional application 60/239899) does not confer on the claimed protein a specific utility. For example, the asserted utility of "differential identification of the tissues(s) or cell type(s) present in a biological sample" (page 34, line 16 of the provisional application 60/239899) could be achieved by *any* protein primarily expressed in the particular cell or tissue type.

In addition, Applicant has presented no evidence that the expression of the claimed polypeptide is connected with any disease, so the asserted utility of using the claimed polypeptide as a diagnostic marker is speculative at best. In fact, the language used indicates the speculative nature of the asserted utilities:

> "...expression of this gene at significantly higher or lower levels *may* be routinely detected in certain tissues or cell types...taken from an individual having such a disorder..." (emphasis added, page 34, lines 21-26 of the provisional application 60/239899)
>
> "Protein, as well as, antibodies directed against the protein *may show utility* as a tumor marker and/or immunotherapy targets..." (emphasis added, page 35, lines 7-9 of the provisional application 60/239899)

Note MPEP 2164.07 regarding the relationship of enablement requirement to utility requirement of 35 U.S.C. 101:

> "The requirement of 35 U.S.C. 112, first paragraph as to how to use the invention is different from the utility requirement of 35 U.S.C. 101. The requirement of 35 U.S.C. 101 is that some specific, substantial, and credible use be set forth for the invention. On the other hand, 35 U.S.C. 112, first paragraph requires an indication of how the use (required by 35 U.S.C. 101) can be carried out, i.e., how the invention can be used."

Accordingly, the claims of the instant application will only be given priority of the instant application filing date (10/10/2001).

Information Disclosure Statement

The information disclosure statement submitted 07/29/2005 referencing related application 09/983,802 has been considered. It is noted there is an error on the form for reference AE. WO-99/06577 is not a publication connected with Schering Corporation. It is assumed this reference is intended to be WO-99/06557. This correction has been indicated on the signed IDS.

Claim Interpretation

Claims 31-36, 44-50, and 56-60 are subject to the following interpretation. These claims are drawn to an isolated protein comprising or consisting of the amino acid sequence of the "secreted portion" of the polypeptide encoded by the HHTLF25 cDNA (SEQ ID NO:164). However, pages 57-58 of the specification clearly state that the protein of gene 14 (which in cross-reference to table 1E is HHTLF25, with an amino

acid sequence of SEQ ID NO:164) is a transmembrane protein that contains a cytoplasmic carboxy terminal domain (page 57 line 31 through page 58 line 4). That is to say, this is not a secreted protein. In addition, Lanier et al (1998, cited on the IDS of 5/9/2003) teach a protein identical to SEQ ID NO:164 except for the presence of two additional amino acids in the Lanier sequence (see below). According to Lanier, the protein is a transmembrane protein with a signal sequence, a 14 amino acid N-terminal extracellular domain, a transmembrane domain corresponding exactly to the transmembrane domain described for SEQ ID NO:164, and a C-terminal cytoplasmic domain.

Nevertheless, table 1A, page 269 of the specification, designates the first amino acid of the "secreted portion" of HHTLF25 (SEQ ID NO:164) as amino acid 27, and the last amino acid residue of the ORF as 111. Therefore, the "secreted portion" of HHTLF25/SEQ ID NO:164 will be considered residues 27-111.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 53, 58, 63 and 68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims depend from claims 51, 56, 61 and 66, respectively, which recite an isolated protein *consisting of* a fragment. Claims 53, 58, 63 and 68 recite *further comprising a heterologous polypeptide sequence*. This inconsistency in the language

results in a vague and indefinite claim scope, since it is unclear whether the comprising language allows for polypeptide sequence(s) in addition to the fragment and the heterologous sequence. Consequently, these claims will be broadly interpreted for purposes of a prior art search.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 37-50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not provide written description of the genus of all isolated proteins with 90% or 95% identity to the recited proteins able to induce IL-10 production. Applicant does not specify any particular amino acid residues or domains of the protein that are critical to the ability of the claimed protein to induce IL-10 production. Without such critical information, one of ordinary skill in the art could not reasonably conclude that Applicant was in actual or conceptual possession of the entire genus of isolated proteins with 90% or 95% identity to the claimed portions of SEQ ID NO:164/HHTLF25 capable of inducing the production of IL-10.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

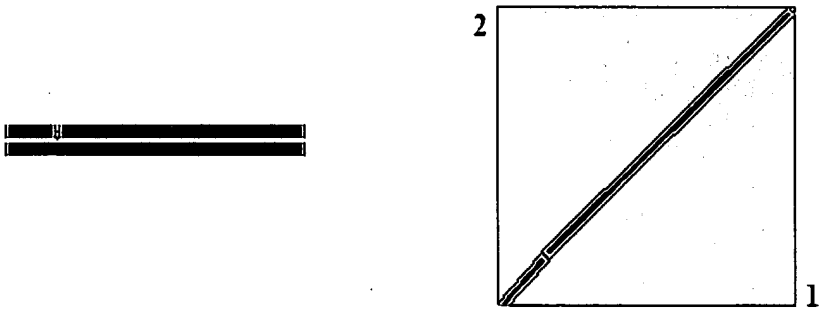
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 25, 30, 31, 36-40, 43-47 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by GenBank GI:5706449 (04-August-1999) as evidenced by Lanier et al (1998).

This GenBank entry discloses an mRNA sequence and provides the translated amino acid sequence. An alignment of this translation with the amino acid sequence of SEQ ID NO:164 clearly shows that the prior art amino acid sequence (hereafter, the 5706449 protein) comprises amino acid residues 27 to 111 of SEQ ID NO:164:

Sequence 1: lcl|SEQID NO 164
Length = 111 (1 .. 111)

Sequence 2: lcl|TranslationGI:5706449
Length = 112 (1 .. 112)



NOTE:Bitscore and expect value are calculated based on the size of the nr database.

```
 Score =  215 bits (547),  Expect = 5e-55
 Identities = 111/112 (99%), Positives = 111/112 (99%), Gaps = 1/112 (0%)

Query  1    MGGLEPCSRLLLLPLLLAV-GLRPVQAQAQSDCSCSTVSPGVLAGIVMGDLVLTVLIALA  59
            MGGLEPCSRLLLLPLLLAV GLRPVQAQAQSDCSCSTVSPGVLAGIVMGDLVLTVLIALA
Sbjct  1    MGGLEPCSRLLLLPLLLAVSGLRPVQAQAQSDCSCSTVSPGVLAGIVMGDLVLTVLIALA  60

Query  60   VYFLGRLVPRGRGAAEATRKQRITETESPYQELQGQRSDVYSDLNTQRPYYK  111
            VYFLGRLVPRGRGAAEATRKQRITETESPYQELQGQRSDVYSDLNTQRPYYK
Sbjct  61   VYFLGRLVPRGRGAAEATRKQRITETESPYQELQGQRSDVYSDLNTQRPYYK  112
```

With regard to claim 30, since the 5706449 protein meets the structural limitations of the protein of claim 25, the 5706449 protein anticipates claim 30. Claim 30 is a product-by-process claim. MPEP 2112.01 states:

> "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie

> case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product."

With regard to claim 31, the 5706449 protein comprises residues 27-111 of SEQ ID NO:164. According to table 1E of the specification, the HHTLF25 protein has the amino acid sequence of SEQ ID NO:164. According to table 1A of the specification, residues 27-111 represent the secreted portion of the protein.

With regard to claim 36, since the 5706449 protein meets the structural limitations of the protein of claim 31, the 5706449 protein anticipates claim 36. Claim 36 is a product-by-process claim. See MPEP 2112.01 text in the discussion of claim 30 above.

With regard to claim 37, as seen in the alignment above, the 5706449 comprises a sequence that is 100% identical to residues 27-111 of SEQ ID NO:164. The 5706449 protein is structurally identical to the claimed protein but for an additional serine residue, which is located in the predicted signal sequence (as evidenced by Lanier et al, 1998) and thus would not be found in the mature functional protein (see claim interpretation above; i.e. the mature functional forms of the claimed protein and the 5706449 proteins are expected to be 100% identical). Therefore, the 5706449 inherently possesses the functional properties of the claimed protein.

With regard to claims 38-40, note that the 5706449 protein is 99% identical to residues 1-111 of SEQ ID NO:164, and all of the percent identity limitations of claims 38-40 are met.

With regard to claim 43, since the 5706449 protein meets the structural limitations of the protein of claim 37, the 5706449 protein anticipates claim 43. Claim 43

is a product-by-process claim. See MPEP 2112.01 text in the discussion of claim 30 above.

With regard to claim 44, the 5706449 protein comprises the entire sequence of residues 27-111, which as discussed in the claim interpretation section above represents the secreted portion of SEQ ID NO:146 (the sequence of the HHTLF25 protein; see table 1E of the specification). In addition, the mature functional forms of the claimed protein and the 5706449 proteins are expected to be 100% identical, since the only difference in the two proteins occurs in the signal sequence. Therefore, the 5706449 protein comprises a polypeptide sequence which is at least 90% identical to the secreted portion of the polypeptide encoded by the HHTLF25 cDNA and must necessarily possess the functional properties of the claimed protein as well.

With regard to claims 45-47, the overall sequence identity between the 5706449 protein and the complete polypeptide encoded by the HHTLF25 cDNA is 99%, and the two proteins are 100% identical in the region corresponding to the secreted portion of SEQ ID NO:164.

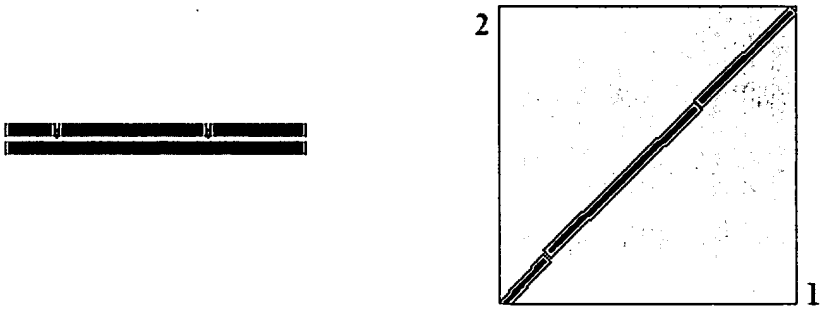
With regard to claim 50, since the 5706449 protein meets the structural limitations of the protein of claim 44, the 5706449 protein anticipates claim 50. Claim 50 is a product-by-process claim. See MPEP 2112.01 text in the discussion of claim 30 above.

Claims 37-50, 53, 58, 63 and 68 are rejected under 35 U.S.C. 102(b) as being anticipated by Lanier et al (1998, cited on the IDS of 5/9/2003).

Lanier teaches a protein identical to SEQ ID NO:164/HHTLF25 except for the presence of two additional amino acid residues in the Lanier sequence (see figure 1). An alignment of the Lanier protein and SEQ ID NO:146/HHTLF25 is shown below.

Sequence 1: lcl|SEQID NO:164
Length = 111 (1 .. 111)

Sequence 2: lcl|Lanier
Length = 113 (1 .. 113)



NOTE:Bitscore and expect value are calculated based on the size of the nr database.

```
 Score =  210 bits (535),  Expect = 1e-53
 Identities = 111/113 (98%), Positives = 111/113 (98%), Gaps = 2/113 (1%)

Query  1    MGGLEPCSRLLLLPLLLAV-GLRPVQAQAQSDCSCSTVSPGVLAGIVMGDLVLTVLIALA  59
            MGGLEPCSRLLLLPLLLAV GLRPVQAQAQSDCSCSTVSPGVLAGIVMGDLVLTVLIALA
Sbjct  1    MGGLEPCSRLLLLPLLLAVSGLRPVQAQAQSDCSCSTVSPGVLAGIVMGDLVLTVLIALA  60

Query  60   VYFLGRLVPRGRGAAE-ATRKQRITETESPYQELQGQRSDVYSDLNTQRPYYK  111
            VYFLGRLVPRGRGAAE ATRKQRITETESPYQELQGQRSDVYSDLNTQRPYYK
Sbjct  61   VYFLGRLVPRGRGAAEAATRKQRITETESPYQELQGQRSDVYSDLNTQRPYYK  113
```

With regard to claim 37, this isolated protein taught by Lanier is 99% identical to SEQ ID NO:164/HHTLF. In the region corresponding to residues 27-111 of SEQ ID NO:164, there is one amino acid difference, so that the two sequences in this region are

identical at 84 out of the 85 positions, which is still 99% identity. Additionally, since this sequence is clearly a naturally occurring variant of the protein claimed by Applicant, a 99% identity in amino acid sequence would necessarily impart the functional properties asserted by Applicant for SEQ ID NO:164 to the Lanier protein.

With regard to claims 38-40, the Lanier protein meets all the limitations regarding the percentage identity recited by the claims.

With regard to claim 41, Lanier teaches an isolated protein comprising the extracellular, transmembrane and cytoplasmic domains of his protein (DAP12), which corresponds to residues 27-111 of SEQ ID NO:164, and further comprising a heterologous polypeptide sequence (the FLAG epitope and CD8 leader segment) (see figure 3, and page 706, column 2, sections entitled *Transfection* and *Immunoprecipitation*).

With regard to claim 42, Lanier teaches the capture of DAP12 onto solid phase (Pansorbin) followed by washing in Tris-buffered saline. Saline is a pharmaceutically acceptable carrier. See page 706, column 2, section entitled *Immunoprecipitation*.

With regard to claim 43, Lanier teaches the protein produced by expressing in a cell and recovering the protein (by immunoprecipitation). See page 706, column 2, sections entitled *Transfection* and *Immunoprecipitation*.

With regard to claim 44, the isolated protein taught by Lanier is at least 90% identical to the secreted portion of the polypeptide encoded by the HHTLF25 cDNA (corresponding to residues 27-111 of SEQ ID NO:164). Lanier's protein necessarily

possesses the functional properties of the claimed protein since the former is a naturally occurring variant of the latter and the two proteins are 99% identical.

With regard to claims 45-47, the Lanier protein meets all the limitations regarding the percentage identity recited by the claims.

With regard to claim 48, Lanier teaches an isolated protein comprising the extracellular, transmembrane and cytoplasmic domains of his protein (DAP12), which corresponds to residues 27-111 of SEQ ID NO:164, and further comprising a heterologous polypeptide sequence (the FLAG epitope and CD8 leader segment) (see figure 3, and page 706, column 2, sections entitled *Transfection* and *Immunoprecipitation*).

With regard to claim 49, Lanier teaches the capture of DAP12 onto solid phase (Pansorbin) followed by washing in Tris-buffered saline. Saline is a pharmaceutically acceptable carrier. See page 706, column 2, section entitled *Immunoprecipitation*.

With regard to claim 50, Lanier teaches the protein produced by expressing in a cell and recovering the protein (by immunoprecipitation). See page 706, column 2, sections entitled *Transfection* and *Immunoprecipitation*.

With regard to claims 53, 58, 63 and 68, Lanier teaches an isolated protein comprising the extracellular, transmembrane and cytoplasmic domains of his protein (DAP12), which corresponds to residues 27-111 of SEQ ID NO:164, and further comprising a heterologous polypeptide sequence (the FLAG epitope and CD8 leader segment) (see figure 3, and page 706, column 2, sections entitled *Transfection* and *Immunoprecipitation*). Therefore, this protein "consists of" a fragment of amino acid

residues 27-111 of SEQ ID NO:164 (e.g. residues 78-113 of the Lanier protein corresponds to residues 76-111 of SEQ ID NO:164) and "further comprises" a heterologous polypeptide sequence (the FLAG epitope and CD8 leader segment).

Claims 37-51, 53-56, and 58-70 are rejected under 35 U.S.C. 102(b) as being anticipated by Bakker et al (WO 99/06557, cited on the IDS dated 7/29/2005).

Bakker discloses the same polypeptide (DAP12) with the same amino acid sequence as SEQ ID NO:164 except for an additional serine residue after position 19 and an additional alanine residue after position 76 of SEQ ID NO:164. See sequence beginning at line 30, page 9.

With regard to claims 37 and 44, the protein taught by Bakker is 99% identical to SEQ ID NO:164/HHTLF. In the region corresponding to residues 27-111 of SEQ ID NO:164, there is one amino acid difference, so that the two sequences in this region are identical at 84 out of the 85 positions, which is still 99% identity. Additionally, since this sequence is clearly a naturally occurring variant of the protein claimed by Applicant, a 99% identity in amino acid sequence would necessarily impart the functional properties asserted by Applicant for SEQ ID NO:164 to the Bakker protein.

With regard to claims 38-40 and 45-47 the Bakker protein meets all the limitations regarding the percentage identity recited by the claims.

With regard to claims 41 and 48, Bakker teaches fusion proteins comprising a heterologous polypeptide sequence. See page 4, lines 11-16, and page 68, lines 5-10.

With regard to claims 42 and 49, Bakker teaches the protein in a composition comprising a pharmaceutically acceptable carrier. See page 3, line 32 through page 4, line 1 and page 45, line 20 through page 46, line 2.

With regard to claims 43 and 50, Bakker teaches the protein produced by expressing in a cell and recovering the protein. See page 3, line 32 through page 4, line 1 and page 45, line 20 through page 46, line 2.

With regard to claims 51, 56, 61, 62, 66 and 67, Bakker teaches a DAP12 polypeptide and fragments thereof, including polypeptides 8 to 125 amino acids (see page 18, lines 1-9 and lines 22-34). With regard to claims limited to the region corresponding to residues 27-111 of SEQ ID NO:164 (claims 51 and 56), Bakker's DAP12 (see amino acid sequence beginning page 9, line 30) differs from the claimed portion of SEQ ID NO:164 only at position 76/77 of SEQ ID NO:164. This means that fragments taught by Bakker corresponding to residues 27-76 and 77-111 of SEQ ID NO: 164 (49 amino acids and 34 amino acids, respectively) meet the "at least 30 contiguous amino acids" limitations. Likewise, with regard to claims 61, 62, 66 and 67, which are drawn to fragments of amino acids 1-111 of SEQ ID NO:164, the fragments taught by Bakker corresponding to residues 20-76 of SEQ ID NO:164 (56 amino acids) meet the limitations "at least 50 contiguous amino acids" limitations.

With regard to claims 53, 58, 63 and 68, Bakker teaches fusion proteins comprising a heterologous polypeptide sequence. See page 4, lines 11-16, and page 68, lines 5-10.

With regard to claims 54, 59, 64 and 69, Bakker teaches the protein in a composition comprising a pharmaceutically acceptable carrier. See page 3, line 32 through page 4, line 1 and page 45, line 20 through page 46, line 2.

With regard to claims 55, 60, 65 and 70, Bakker teaches the protein produced by expressing in a cell and recovering the protein. See page 3, line 32 through page 4, line 1 and page 45, line 20 through page 46, line 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 28, 29, 34, 35, 52 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bakker et al (WO 99/06557, cited on the IDS dated 7/29/2005) in view of GenBank GI:5706449 (04-August-1999).

With regard to claims 28, 29, 34 and 35, GenBank GI:5706449 discloses an amino acid sequence comprising residues 27-111 of SEQ ID NO:164 (which also corresponds to the secreted portion of the polypeptide encoded by HHTLF25 cDNA as defined by Applicant, see ***Claim Interpretation*** above). GenBank GI:5706449 does not disclose the polypeptide further comprising a heterologous polypeptide or in a composition comprising a pharmaceutically acceptable carrier.

Bakker discloses the same polypeptide (DAP12) with the same amino acid sequence as SEQ ID NO:164 except for an additional serine residue after position 19 and an additional alanine residue after position 76 of SEQ ID NO:164. See sequence beginning at line 30, page 9. Bakker also teaches the polypeptide comprising heterologous polypeptide sequences (see page 4, lines 11-16, and page 68, lines 5-10) and teaches the polypeptides in compositions comprising a pharmaceutically acceptable carrier (see page 3, line 32 through page 4, line 1 and page 45, line 20 through page 46, line 2). Bakker does not teach a polypeptide comprising amino acids 27-111 of SEQ ID NO:164 (which also corresponds to the secreted portion of the

polypeptide encoded by HHTLF25 cDNA as defined by Applicant, see ***Claim Interpretation*** above).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention of the instant application was made to use the polypeptide disclosed by GenBank GI:5706449 in place of the polypeptide disclosed by Bakker, thus arriving at the claimed invention. The motivation to do so is expressly stated by Bakker on page 3, lines 23-25: "Other preferred embodiments include such a polypeptide which: comprises a plurality of the lengths; *is a natural allelic variant of DAP12*..." (emphasis added). The amino acid sequences of the polypeptide DAP12 disclosed by Bakker and the polypeptide disclosed by GenBank GI:5706449 are 99% identical, are derived from the same species, and are both referred to as DAP12. Clearly one of skill in the art would have recognized that these were natural allelic variants and would have been motivated by the teaching of Bakker quoted above to substitute the GenBank GI:5706449 polypeptide in the various embodiments of Bakker's invention.

With regard to claims 52 and 57, having substituted the GenBank GI:5706449 polypeptide in the various embodiments of Bakker's invention, one would arrive at the claimed inventions of claims 52 and 57, since Bakker teaches fragments of the polypeptide ranging from 8-125 amino acids (see page 18, lines 1-9 and lines 22-34) and since the 5706449 polypeptide and SEQ ID NO:164 are identical over the region of residues 27-111 of SEQ ID NO:164.

Allowable Subject Matter

Claims 26, 27, 32 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Claims 26, 27, 32 and 33 are free of the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Woolwine whose telephone number is (571) 272-1144. The examiner can normally be reached on Mon-Fri 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JEFFREY FREDMAN
PRIMARY EXAMINER
5/19/06

scw